



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/887,111	06/25/2001	Jang-Kun Song	6192.0214.AA	7306

7590 01/22/2004  
McGuireWoods LLP  
1750 Tysons Blvd  
Suite 1800  
McLean, VA 22102

EXAMINER
SEFER, AHMED N

ART UNIT	PAPER NUMBER
2826	

DATE MAILED: 01/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/887,111

Applicant(s)

SONG ET AL.

Examiner

A. Sefer

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendment filed October 17, 2003 has been entered and new claims 16-20 have been added.

### ***Response to Arguments***

2. Applicant's arguments filed October 17, 2003 have been fully considered but they are not persuasive.
3. Applicants argue that the art rejection of independent claims 1 and 8 does not teach or suggest all the elements either explicitly or inherently. Specifically, Applicants claim that Sekiguchi USPN 6,084,650 does not teach a liquid crystal layer having a polymer region.
4. In response to Applicants argument that Sekiguchi does not teach a liquid crystal layer having a polymer region, Sekiguchi does teach a liquid crystal layer having a polymer region (see col. 1, lines 1-15 and 45-53, col. 9, lines 16-23, col. 21, lines 12-17 and col. 24, lines 6-19).

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

6. Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Sekiguchi US 6,084,650.

Sekiguchi discloses (see fig. 26, col. 1, lines 1-15 and 45-53, col. 9, lines 16-23, and col. 24, lines 6-19) a liquid crystal display, comprising a first substrate 1; a second substrate 6 facing the first substrate; a liquid crystal layer 16 sandwiched between the first and the second substrates, the liquid crystal layer having a polymer region (col. 21, lines 12-17) at each pixel region; a first electrode 5 formed on said first substrate; a second electrode 9 formed on said second substrate; and wherein said first substrate and said second substrate apply an electric field to said liquid crystal layer.

As for claim 2, Sekiguchi discloses in figs. 2 and 26 an opening pattern 15a/50a formed on the first electrode, wherein the polymer region is arranged corresponding to the opening pattern.

As for claim 3, Sekiguchi discloses a color filter 11 formed on the second electrode; and a groove 11g formed on the color filter, wherein the groove is arranged corresponding to the opening pattern 50a of said first electrode.

As for claims 4 and 5, Sekiguchi discloses in fig. 26 a protrusion 50 formed on or under (as in claim 5) the opening pattern.

As for claim 6, Sekiguchi discloses a first vertical alignment 21A formed on the first electrode, and a second vertical alignment 21B formed on the second electrode.

7. Claims 8-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Sekiguchi US 6,084,650.

Sekiguchi discloses (see fig. 26, col. 1, lines 1-15 and 45-53, col. 9, lines 16-23, and col. 24, lines 6-19) a method for fabricating a liquid crystal display, comprising steps of arranging a first substrate 1 and a second substrate 6 such that the first substrate and the second substrate face each other; filling liquid crystal 16 between the first substrate and the second substrate to form a liquid crystal layer; and to forming a polymer region (col. 21, lines 12-17) at the liquid crystal layer.

As for claims 9 and 12, Sekiguchi discloses a liquid crystal layer containing monomers having a phase transit property when light is illuminated or UV light is illuminated to the monomers through the groove 11g at the step of forming the polymer region (as in claim 12).

As for claim 10, Sekiguchi discloses in figs. 2 and 26 forming a first electrode on the first substrate; forming a second electrode on the second substrate; and forming an opening pattern 15/50a on the first electrode.

As for claim 11, Sekiguchi discloses forming color filters 11 on the second substrate, each color filter having a groove arranged corresponding to the opening pattern.

As for claims 13 and 14, Sekiguchi discloses forming a protrusion 50 on or under (as in claim 14) the opening pattern.

8. Claims 16-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Sekiguchi US 6,084,650.

Sekiguchi discloses (see fig. 26, col. 1, lines 1-15 and 45-53, col. 9, lines 16-23, and col. 24, lines 6-19) a liquid crystal display, comprising a first substrate 1; a first electrode 5 formed on the first substrate; a second substrate 6 facing the first substrate; a second electrode 9 formed on said second substrate an facing the first electrode; a liquid crystal layer 16 containing liquid

Art Unit: 2826

crystal molecules and formed between the first substrate and the second substrate; a polymer region (col. 21, lines 12-17) form in the liquid crystal layer.

As to the said polymer region preventing the rotation of the liquid crystal molecules recited in the claim, a recitation of an intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

As for claim 17, Sekiguchi discloses in figs. 2 and 26 an opening pattern 15a/50a formed on the first electrode, wherein the polymer region is arranged corresponding to the opening pattern.

As for claim 18, Sekiguchi discloses in fig. 26 a protrusion 50 formed on the opening pattern.

As for claim 19, Sekiguchi discloses a color filter 11 formed on the second electrode; and a groove 11g formed on the second electrode, wherein the second electrode is arranged corresponding to the opening pattern 50a.

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 7, 15 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sekiguchi in view of Yoon et al. US PG-Pub 2001/0007487.

Sekiguchi discloses the limitations as recited in claims 1, 8, 16 and 17, but does not specifically disclose a liquid crystal having a negative dielectric anisotropy.

Yoon et al disclose (see par. 0047) a liquid crystal display, comprising a first substrate 1; a second substrate 60 facing the first substrate; a liquid crystal layer 90 having a negative dielectric anisotropy sandwiched between the first and the second substrates.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Yoon et al since that would result in a wide viewing angle as taught by Yoon et al.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamada et al. (JP 2000-347175) a liquid crystal display including a liquid crystal layer having a polymer region.

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 2826

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (703) 605-1227.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601.

ANS  
January 5, 2004



TECHNOLOGY CENTER 2000